

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-11 are pending in this application, Claim 7 having been presently amended. Support for amended Claim 7 can be found, for example, in the original claims, drawings, and specification as originally filed.¹ No new matter has been added.

In the outstanding Office Action, Claims 9 and 11 were rejected under 35 U.S.C. §103(a) as being unpatentable over Haartsen (U.S. Patent No. 6,026,297, hereinafter “Haartsen ‘297’”) in view of Schmidt (U.S. Publ. No. 2003/0035388, hereinafter “Schmidt”); Claims 1-6 were rejected under 35 U.S.C. §103(a) as being unpatentable over Haartsen ‘297 in view of Haartsen (U.S. Patent No. 7,016,372, hereinafter “Haartsen ‘372’”) and Schmidt; Claims 7-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Haartsen ‘297 in view of Haartsen ‘372; and Claim 10 was rejected under 35 U.S.C. §103(a) as being unpatentable over Haartsen ‘297 in view of Schmidt and Haartsen ‘372.

Applicants respectfully submit that the rejection of Claims 1-8 and 11 under 35 U.S.C. §103(a) as unpatentable over Haartsen ‘297 in view of Haartsen ‘372 was traversed in Applicants’ response to the Office Action of November 26, 2008, and that the outstanding Office Action fails to address the substance of these arguments. Thus, Applicants note that the present response includes arguments similar to those put forth in Applicants’ response to the Office Action of November 26, 2008. While page 2 of the outstanding Office Action states that “Applicant’s arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection,” Applicants invite the Examiner’s attention

¹ See original Claim 5.

to M.P.E.P. 707.07(f), third paragraph, which states “[w]here the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it.” Applicants respectfully submit that the rejections in the outstanding Office Action are still based, in part, on Haartsen ‘297 and Haartsen ‘372,² and, therefore, respectfully request that the substance of the previously submitted arguments be addressed in the next Office Action.

In response to the rejection of Claims 1-6 under 35 U.S.C. §103(a) as being unpatentable over Haartsen ‘297 in view of Haartsen ‘372 and Schmidt, Applicants respectfully request reconsideration of the rejection and traverse the rejection as discussed next.

Independent Claim 1 is directed to a method to provide additional bandwidth for a wireless ad hoc network configured to operate in a certain communication channel with a certain amount of available bandwidth including, *inter alia*:

. . . checking by a central controller of said wireless ad hoc network whether more bandwidth than said certain amount of available bandwidth is required by said plurality of wireless terminals; and

splitting up said wireless ad hoc network such that at least one new wireless ad hoc network is spawned, if more bandwidth than said certain amount of available bandwidth is required by said plurality of wireless terminals, wherein

after the splitting up of said wireless ad hoc network at least one wireless terminal of said wireless ad hoc network and/or one or more new wireless terminals belong(s) to said at least one new wireless ad hoc network, and

said at least one new wireless ad hoc network is operating in a respective different communication channel.

² See, for example, pages 6 and 7 of the outstanding Office Action, rejecting Claims 2, 4, and 5 with reference to Haartsen ‘297 and Haartsen ‘372, but not in reference to Schmidt.

Independent Claim 9 recites substantially similar features as Claim 1. Thus, the arguments presented below with respect to Claim 1 are applicable to independent Claim 9.

Turning now to the applied references, Haartsen '297 describes “techniques for enabling wireless units to contemporaneously participate in communications taking place in more than one piconet at a time.”³ However, Applicants respectfully submit that Haartsen '297 fails to teach or suggest splitting a wireless ad hoc network. Haartsen '297 describes that a unit participating in a first piconet may participate in a second piconet by agreeing to a hold time-out value with the other members of the first piconet. The unit then enters a hold mode and participates in the second piconet. Thus, once the hold time-out value has expired, the unit must resume communication with the first piconet. Therefore, Haartsen '297 fails to teach or suggest that the first piconet has been split because the unit remains a member of the first piconet.

In addition, Applicants respectfully note that the use of the word “*enter*” elsewhere in Haartsen '297 implies that Haartsen '297 describes a change between two *established* piconets and does not describe the creation of a new piconet. For example, column 4, lines 12-15 of Haartsen '297 states “[a] slave unit leaving the first piconet can enter the second piconet as a slave . . . or as a master.”

Page 5 of the outstanding Office Action acknowledges that Haartsen '297 “does not specifically disclose to provide additional bandwidth if more bandwidth than said certain amount of available bandwidth is required,” but asserts that Haartsen '372 provides additional bandwidth. Therefore, turning now to Haartsen '372, Haartsen '372 “relates to bandwidth allocation in a network controlled by a central traffic scheduler, and to methods

³ See Haartsen '297 at column 2, lines 38-41.

and embodiments of a scheduling algorithm that improves throughput of asynchronous services.”⁴ However, Applicants respectfully submit that Haartsen ‘372 reallocates the bandwidth which is available in the network to the network units according to a priority scheme. For example, Haartsen ‘372, states that when the slaves’ requested capacity exceeds the actual capacity, “the slave with the lowest priority is automatically cut on its throughput request.”⁵ Therefore, no additional bandwidth is provided.

In addition, Haartsen ‘372 fails to teach or suggest checking for a bandwidth overload in the network and controlling the spawning of a second network as a response to a sensed overload. Haartsen ‘372 describes that the dynamic bandwidth allocation results in “the slave with the lowest priority [being] automatically cut on its through-put request.”⁶ Therefore, Haartsen ‘372 does not sense a bandwidth overload, but automatically anticipates and avoids a bandwidth overload by limiting the throughput at the low priority slaves. Thus, Haartsen ‘372 fails to teach or suggest the provision of additional bandwidth.

Further, Haartsen ‘372 describes an alternative solution when bandwidth restrictions in a wireless network begin to decrease the communication efficiency. In such a situation, the available bandwidth is allocated between the wireless units of the same network according to a priority scheme.⁷ Thus, Applicants respectfully submit that the use of a priority scheme in Haartsen ‘372 to alleviate a decrease in communication efficiency teaches away from spawning a second network. Therefore, a person having ordinary skill in the art would not consider combining Haartsen ‘297 and Haartsen ‘372.

⁴ See Haartsen ‘372 at column 1, lines 14-17.

⁵ See Haartsen ‘372 at column 12, lines 23-24.

⁶ See Haartsen ‘372 at column 12, lines 32-34.

⁷ See Haartsen ‘372 at column 14, lines 28-44.

Turning now to Schmidt, Schmidt refers to a process to wirelessly communicate data over a plurality of cellular channels in a system comprising a base station and a plurality of mobile stations.⁸ However, Applicants respectfully submit that Schmidt fails to teach or suggest a central control of a wireless ad hoc network that checks whether more bandwidth than a certain amount of available bandwidth is required by a plurality of wireless terminals. Specifically, Schmidt describes a mobile station with a radio frequency sniffer that computes the number of required radio channels and detects available radio channels.⁹ The radio frequency sniffer may also reside at the base station.¹⁰ The mobile station (e.g., wireless terminal) sends a message to a base station (e.g., central controller) requesting allocation of the channels.¹¹ Thus, Schmidt indicates that a central controller may sense available bandwidth and allocate the bandwidth based upon the request of a wireless terminal, but Schmidt fails to teach or suggest that the central controller checks if the wireless terminal(s) require more bandwidth. In addition, Schmidt also fails to teach splitting of a wireless network because no new wireless network is created.

Therefore, Haartsen '297, Haartsen '372, and Schmidt either alone or in proper combination, fail to teach or suggest “***checking by a central controller of said wireless ad hoc network whether more bandwidth than said certain amount of available bandwidth is required . . . and splitting up said wireless ad-hoc network such that at least one new wireless ad hoc network is spawned***” as recited in amended Claim 1.

Accordingly, it is respectfully submitted that independent Claims 1 and 9 patentably distinguish over Haartsen '297, Haartsen '372, and Schmidt. Applicants respectfully submit

⁸ See Schmidt at paragraphs [0017], [0019], and [0024].

⁹ See Schmidt at paragraph [0018].

¹⁰ See Schmidt at paragraph [0024].

¹¹ See Schmidt at paragraph [0019].

that Claims 2-6 depend from Claim 1 and Claims 10 and 11 depend from Claim 9 and are therefore believed to be patentable for at least the reasons discussed above. Further, Claims 2, 4, and 5 are further believed to be patentable for the following additional reasons.

Claim 2 recites, *inter alia*, that “**said central controller determines a new central controller for said at least one new wireless ad hoc network.**” Page 6 of the outstanding Office Action states that Haartsen ‘297 describes a central controller that “determines a new central controller for said at least one new wireless ad-hoc network.” However, Haartsen ‘297 actually describes that a unit participating as a master in a network B checks the expiration of a first time-out from network A.¹² On expiration of the first time-out, the unit enters into a second time-out with network B. The unit is then active in network A and periodically checks the expiration of the second time-out.¹³ Then, the unit switches back to network B at expiration of the second time-out.¹⁴ The unit leaves network B **without determining a new central controller for network B**. Hence, it is clear, that the unit leaves network A **without determining a new central controller for network A**.¹⁵ Thus, Haartsen ‘297 fails to teach or suggest **a central controller configured to determine a new central controller for a new wireless ad-hoc network.**

Claim 4 recites, *inter alia*, that “**wireless terminals with certain connections that should not be interrupted are not moved** to said at least one new wireless ad hoc network.” Page 6 of the outstanding Office Action states that Haartsen ‘297 describes that “said certain separation criteria assure that wireless terminals with certain connections that should not be interrupted are not moved to said at least one new wireless ad-hoc network.” However,

¹² See Haartsen ‘297 at column 6, lines 12-15.

¹³ See Haartsen ‘297 at column 6, lines 26-29.

¹⁴ See Haartsen ‘297 at column 6, lines 30-36.

¹⁵ See Haartsen ‘297 at column 5, lines 58-63.

column 4, lines 33-40 of Haartsen '297 describes that a master leaving a network A puts all slaves of network A into a hold mode. On expiration of a hold time out, the slaves wake up and wait to hear from the master again. Thus, the connection between the units is actually interrupted. Therefore, Haartsen '297 fails to teach or suggest that connections to wireless terminals that cannot be interrupted are not interrupted.

Claim 5 recites, *inter alia*:

. . . providing new commands in order to spawn said at least one new wireless ad hoc network, wherein

a requesting command (SPAWN_NETWORK) is sent to a request wireless terminal to ask this request wireless terminal to move to said at least one new ad hoc wireless network, and

a confirmation command (SPAWN_NETWORK_ACK) is used by a request wireless terminal to signal that it can move to said at least one new ad hoc wireless network.

Page 7 of the outstanding Office Action states that Haartsen '297 describes that “a requesting command is sent to a request wireless terminal to ask this request wireless terminal to move to said at least one new ad-hoc wireless network.” However, according to column 6, lines 19-23 of Haartsen '297, the master unit comes to an agreement with all network B slaves as to a hold time-out period for piconet B. The command sets the receiving units *in a hold state*, but does not initiate a network change of the receiving unit. Thus, Haartsen '297 fails to teach or suggest a command that *initiates a network change* of the receiving unit.

Page 7 of the outstanding Office Action also states that Haartsen '372 describes that “a confirmation command is used by a request wireless terminal to signal that it can move to said at least one new ad hoc wireless network.” However, as previously mentioned, column

8, line 16 to column 9, line 25 of Haartsen '372 describes, in a general manner, a polling mode for a frequency hop/time division duplex (FH/TDD) channel. Thus, Haartsen '372 does not teach or suggest that a request wireless terminal uses a confirmation command to signal that it can move to a new ad-hoc wireless network.

Accordingly, Applicants respectfully request that the rejection of Claims 1-6 under 35 U.S.C. §103(a) as unpatentable over Haartsen '297 in view of Haartsen '372 and Schmidt, the rejection of Claims 9 and 11 under 35 U.S.C. §103(a) as unpatentable over Haartsen '372 in view of Schmidt, and the rejection of Claim 10 under 35 U.S.C. §103(a) as unpatentable over Haartsen '297 in view of Schmidt and Haartsen '372 be withdrawn.

In response to the rejection of Claims 7 and 8 under 35 U.S.C. §103(a) as being unpatentable over Haartsen '297 in view of Haartsen '372, Applicants respectfully submit that amended independent Claim 7 recites novel features clearly not taught or suggested by the applied references.

Amended independent Claim 7 is directed to a wireless terminal and recites, *inter alia*:

. . . a receiving unit configured to receive a requesting command (SPAWN_NETWORK) from the central controller indicating certain operating conditions for the wireless terminal to ask the wireless terminal to move to a new ad hoc wireless network;

a condition checking unit configured to check if the wireless terminal can be operated under said certain conditions;
and

a sending unit configured to send out a confirmation command (SPAWN_NETWORK_ACK), if the condition checking unit determines that the wireless terminal can be

operated under said certain conditions to signal that the wireless terminal can move to said new wireless network.

Page 8 of the outstanding Office Action acknowledges that Haartsen '297 "does not specifically disclose a confirmation command is used by a request wireless terminal to signal that it can move to at least one new ad hoc wireless network." Page 8 of the outstanding Office Action also states that Haartsen '372 describes a "confirmation command [being] used by a request wireless terminal to signal that it can move to said at least one new ad hoc wireless network." However, Haartsen '372 describes a polling scheme for a frequency hop/time division duplex channel. Hence, Haartsen '372 fails teach or suggest that the slave sends the master a confirmation command to signal that the slave can move to another wireless network.¹⁶ The slave unit continues to participate in the same wireless network controlled by the master. Accordingly, Applicants respectfully submit that because Haartsen '372 does not describe a change to another wireless network, it cannot describe a confirmation command used to signal that the wireless network can be changed. Therefore, because neither Haartsen '297 nor Haartsen '372 disclose a confirmation command, the combined teachings of Haartsen '297 and Haartsen '372 fail to teach or suggest "***a sending unit configured to send out a confirmation command*** (SPAWN_NETWORK_ACK), if the condition checking unit determines that the wireless terminal can be operated under said certain conditions to signal that the wireless terminal can move to said new wireless network," as recited in amended Claim 7.

¹⁶ See Haartsen '372 at column 8, line 16 to column 9, line 25.

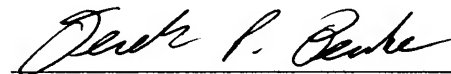
Accordingly, it is respectfully submitted that independent Claim 7 patentably distinguishes over Haartsen '297 in view of Haartsen '372. In addition, Claim 8 depends on Claim 7 and is therefore believed to be patentable for at least the reasons discussed above.

Thus, Applicants respectfully request that the rejection of Claims 7 and 8 under 35 U.S.C. §103(a) as being unpatentable over Haartsen '297 and Haartsen '372 be withdrawn.

Consequently, in view of the present amendment and in light of the above discussion, the pending claims as presented herewith are believed to be in condition for formal allowance, and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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